

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for sharing a hard disk among multiple users of a computer, the method implemented on a sharing device coupled to the computer, the method comprising:
 - receiving a hard disk access command including a virtual hard disk address of a virtual device associated with one of the multiple users
 - translating the virtual hard disk address to a translated address
 - forwarding to the hard disk the hard disk access command with the translated address in place of the virtual hard disk address
 - receiving a response to the hard disk access command from the hard disk when the response includes a hard disk address,
 - translating the hard disk address into a second virtual hard disk address of the virtual device associated with the one of the multiple users
 - forwarding the response and the second virtual hard disk address
 - when the response includes a hard disk size,
 - translating the hard disk size into a virtual disk size of the virtual device associated with the one of the multiple users

forwarding the response with the virtual disk size in place of the hard disk size.

2. (Cancelled)
3. (Cancelled)
4. (Original) The method of claim 1 wherein the translating comprises:
mapping the virtual hard disk address to a real hard disk address.
5. (Original) The method of claim 4 wherein the mapping comprises:
referring to a virtual device table.
6. (Original) The method of claim 1 wherein the translating comprises:
adding an offset to the virtual hard disk address based on virtual device identifying
information stored in a virtual device table.
7. (Currently amended) The method of claim 2 1 wherein the translating the hard disk address
comprises:
mapping the hard disk address included in the response ~~address~~ to the virtual address by
referring to a virtual device table.
8. (Currently amended) The method of claim 2 1 wherein the translating the hard disk address
comprises:

subtracting an offset from the hard disk address included in the response address based on identifying information of an active virtual device.

9. (Previously presented) The method of claim 8 wherein the subtracting comprises:
referring to a virtual device table to obtain the offset.
10. (Original) The method of claim 1 wherein the sharing device is one of a field programmable gate array (FPGA), a programmable logic unit (PLU), an application specific integrated circuit (ASIC).
11. (Original) The method of claim 1 wherein the sharing device is coupled between the hard disk and a motherboard of the computer.
12. (Original) The method of claim 1 wherein the sharing device is coupled to a motherboard included in the computer.
13. (Original) The method of claim 1 wherein the sharing device is included on a card to be coupled to a card slot in the computer.
14. (Withdrawn) A method for sharing a hard disk among multiple users of a computer, the method implemented on a sharing device coupled to the computer, the method comprising:
when booting for a first time,
allowing a user to designate multiple virtual devices

creating a virtual device table including identifying information for each of the virtual devices

copying an operating system and application programs to each of the virtual devices on the hard disk.

15. (Withdrawn) The method of claim 14 further comprising:
allowing the user to select an active virtual device from the virtual devices
updating the virtual device table based on the user selection of the active virtual device.
16. (Withdrawn) The method of claim 14 wherein the sharing device is one of a field programmable gate array (FPGA), a programmable logic unit (PLU), an application specific integrated circuit (ASIC).
17. (Withdrawn) The method of claim 14 wherein the sharing device is coupled between the hard disk and a motherboard of the computer.
18. (Withdrawn) The method of claim 14 wherein the sharing device is coupled to a motherboard included in the computer.
19. (Withdrawn) The method of claim 14 wherein the sharing device is included on a card to be coupled to a card slot in the computer.

20. (Currently amended) A sharing device to be coupled with a computing device having a hard disk, the sharing device having instructions stored thereon which when executed cause the sharing device to perform operations comprising:

receiving a hard disk access command including a virtual hard disk address of a virtual device associated with one of multiple users of the computing device

translating the hard disk address to a translated address

forwarding to the hard disk the hard disk access command with the translated address in place of the virtual hard disk address

receiving a response to the hard disk access command from the hard disk
when the response includes a hard disk address,

translating the hard disk address into a second virtual hard disk address of the
virtual device associated with the one of the multiple users

forwarding the response with the second virtual hard disk address in place of the
hard disk address

when the response includes a hard disk size,

translating the hard disk size into a virtual disk size of the virtual device associated
with the one of the multiple users

forwarding the response with the virtual disk size in place of the hard disk size,

21. (Cancelled)

22. (Currently amended) The sharing device of claim 20 wherein the translating the hard disk address comprises:

mapping the hard disk address to an active virtual device address.

23. (Original) The sharing device of claim 22 wherein the mapping comprises:

referring to a virtual device table.

24. (Currently amended) The sharing device of claim 20 wherein the translating the hard disk address comprises:

adding an offset to the hard disk address based on identifying information of an active virtual device.

25. (Previously presented) The sharing device of claim 24 wherein the adding comprises:

referring to a virtual device table to obtain the offset.

26. (Currently amended) The sharing device of claim ~~20~~ 24 wherein the translating the hard disk the response address comprises:

mapping the hard disk address in the response address to the virtual address by referring to a virtual device table.

27. (Currently amended) The sharing device of claim ~~20~~ 24 wherein the translating the hard disk the response address comprises:

subtracting an offset from the response address based on identifying information of an active virtual device.

28. (Previously presented) The sharing device of claim 27 wherein the subtracting comprises: referring to a virtual device table to obtain the offset.

29. (Original) The sharing device of claim 20 wherein the sharing device includes at least one of a field programmable gate array (FPGA), a programmable logic unit (PLU), an application specific integrated circuit (ASIC).

30. (Original) The sharing device of claim 20 wherein the sharing device is coupled between the hard disk and a motherboard of the computing device.

31. (Original) The sharing device of claim 20 wherein the sharing device is coupled to a motherboard included in the computing device.

32. (Original) The sharing device of claim 20 wherein the sharing device is included on a card to be coupled to a card slot in the computing device.

33. (Withdrawn) A sharing device to be coupled with a computing device having a hard disk, the sharing device having instructions stored thereon which when executed cause the sharing device to perform operations allowing for sharing the hard disk among multiple users of the computing device, the operations comprising:

when booting for a first time,
allowing a user to designate multiple virtual devices
creating a virtual device table including identifying information for each of the
virtual devices
copying an operating system and application programs to each of the virtual devices
on the hard disk.

34. (Withdrawn) The sharing device of claim 33 having further instructions which when executed cause the sharing device to perform operations comprising:

allowing the user to select an active virtual device from the virtual devices
updating the virtual device table based on the user selection of the active virtual device.

35. (Withdrawn) The sharing device of claim 33 wherein the sharing device is one of a field programmable gate array (FPGA), a programmable logic unit (PLU), an application specific integrated circuit (ASIC).

36. (Withdrawn) The sharing device of claim 33 wherein the sharing device is coupled between the hard disk and a motherboard of the computing device.

37. (Withdrawn) The sharing device of claim 33 wherein the sharing device is coupled to a motherboard included in the computing device.

38. (Withdrawn) The sharing device of claim 33 wherein the sharing device is included on a card to be coupled to a card slot in the computing device.

39. (Withdrawn) The sharing device of claim 33 wherein the sharing device is included on the hard disk.

40. (Currently amended) A method for sharing a storage device among multiple users of a computing device, the method implemented on a sharing device coupled to the computing device, the method comprising:

receiving a storage device access command including a virtual storage device address of a virtual device associated with one of the multiple users

translating the virtual storage device address to a translated address

forwarding to the storage device the storage device access command with the translated address in place of the storage device address.

41. (Original) The method of claim 40 further comprising:

receiving a response to the access command from the storage device

if the response includes a storage device address, translating the storage device address into a virtual device address

forwarding the response with the virtual device address in place of the storage device address.

42. (Original) The method of claim 41 further comprising:

if the response includes a storage device size, translating the storage device size into a virtual device size

forwarding the response with the virtual device size in place of the storage device size.

43. (Original) The method of claim 40 wherein the translating comprises:

mapping the virtual device address to a real storage device address.

44. (Original) The method of claim 43 wherein the mapping comprises:

referring to a virtual device table.

45. (Original) The method of claim 40 wherein the translating comprises:

adding an offset to the virtual device address based on virtual device identifying information stored in a virtual device table.

46. (Original) The method of claim 41 wherein the translating the storage device address comprises:

mapping the response address to the virtual address by referring to a virtual device table.

47. (Original) The method of claim 41 wherein the translating the storage device address comprises:

subtracting an offset from the response address based on identifying information of an active virtual device.

48. (Previously presented) The method of claim 47 wherein the subtracting comprises:
referring to a virtual device table to obtain the offset.
49. (Original) The method of claim 40 wherein the sharing device is one of a field programmable gate array (FPGA), a programmable logic unit (PLU), an application specific integrated circuit (ASIC).
50. (Original) The method of claim 40 wherein the sharing device is coupled between the storage device and a motherboard of the computing device.
51. (Original) The method of claim 40 wherein the sharing device is coupled to a motherboard included in the computing device.
52. (Original) The method of claim 40 wherein the sharing device is included on a card to be coupled to a card slot in the computing device.
53. (Original) The method of claim 40 wherein the sharing device is included in the storage device.
54. (Original) The method of claim 40 wherein the storage device is a hard disk drive.
55. (Withdrawn) A method for sharing a storage device among multiple users of a computing device, the method implemented on a sharing device coupled to the computing device, the method comprising:

when booting for a first time,
allowing a user to designate multiple virtual devices from the storage device
creating a virtual device table including identifying information for each of the
virtual devices
copying an operating system and application programs to each of the virtual devices
on the storage device.

56. (Withdrawn) The method of claim 55 further comprising:

allowing the user to select an active virtual device from the virtual devices
updating the virtual device table based on the user selection of the active virtual device.

57. (Withdrawn) The method of claim 55 wherein the sharing device is one of a field programmable gate array (FPGA), a programmable logic unit (PLU), an application specific integrated circuit (ASIC).

58. (Withdrawn) The method of claim 55 wherein the sharing device is coupled between the storage device and a motherboard of the computing device.

59. (Withdrawn) The method of claim 55 wherein the sharing device is coupled to a motherboard included in the computing device.

60. (Withdrawn) The method of claim 55 wherein the sharing device is included on a card to be coupled to a card slot in the computing device.

- 61.** (Withdrawn) The method of claim 55 wherein the sharing device is included in the storage device.
- 62.** (Withdrawn) The method of claim 55 wherein the storage device is a hard disk drive.